



Red Sea MAX® C-Series

Complete Coral Reef Systems

Installation and Operation Manual



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Congratulations on your purchase of the Red Sea MAX® C-Series complete reef system.

Red Sea developed the MAX® to provide a complete reef spec system so that from the beginning, you can focus on the aquarium's inhabitants rather than the hardware.

The Red Sea MAX® approach to the coral reef experience is to create an environment that is specifically attuned to the needs of coral and all reef inhabitants on an artificial reef. In the ocean coral reefs flourish only where specific physical conditions prevail, such as sufficient light, adequate current, stable temperature and water quality.

The Red Sea MAX® system provides the conditions that enable you to keep a thriving, healthy reef in your own home.

This manual contains the installation and operational instructions for all of the MAX® C-Series aquariums.

We hope that you enjoy your MAX® and wish you happy reefing.

To benefit from product update information and exclusive special offers to registered MAX® owners, please register your MAX® on-line at redseafish.com

1 Safety

Please read and follow all safety instructions.

DANGER: To avoid possible electric shock, special care should be taken when handling a wet aquarium. For each of the following situations, do not attempt repairs yourself; return the appliance to an authorized service facility for service or discard the appliance.

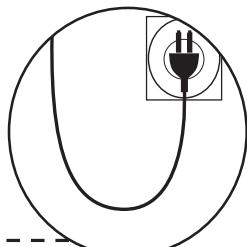
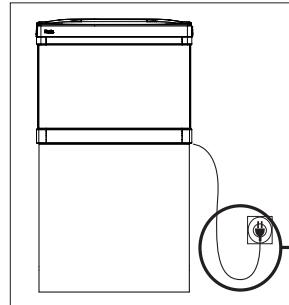
WARNING: To guard against injury, basic safety precautions should be observed, including the following:

- a. Do not operate any appliance if it has a damaged cord or plug, if it is malfunctioning, or if it is dropped or damaged in any manner. If the external cable is damaged, it shall only be replaced by the manufacturer.
- b. To avoid the possibility of the appliance plug or receptacle getting wet, position the aquarium stand and tank to one side of a wall mounted receptacle to prevent water from dripping onto the receptacle or plug. You should create a "drip loop" (Figure 1) for each cord connecting an aquarium appliance to a receptacle. The "drip loop" is that part of the cord below the level of the receptacle, or the connector. Use an extension cord, if necessary, to prevent water traveling along the cord and coming into contact with the receptacle. If the plug or receptacle does get wet, DO NOT unplug the cord. Disconnect the fuse or circuit breaker that supplies power to the appliance. Then unplug the device and examine for presence of water in the receptacle.
- c. Close supervision is necessary when any appliance is used by or near children.

- d. To avoid injury, do not contact moving parts.
- e. Always unplug an appliance from an outlet when not in use, before putting on or taking off parts, and before cleaning. Never pull the cord itself to remove the plug from the outlet. Grasp the plug and pull to disconnect.
- f. Do not use an appliance for anything other than its intended use. The use of attachments not recommended or sold by the appliance manufacturer may cause an unsafe condition.
- g. Do not install or store the appliance where it will be exposed to the weather or to temperatures below freezing point.
- h. Make sure an appliance mounted on a tank is securely installed before operating it.

Read and observe all the important notices on the appliance.

NOTE: A cord rated for less amperes or watts than the appliance rating may overheat. Care should be taken to arrange the cord so that it cannot be tripped over or pulled accidentally.



Drip Loop
figure 1

2 Location

The first step in setting up the MAX®C is to choose a suitable location.

Electric Supply

Ensure that the electric power supply outlet used for the MAX®C is correctly rated for the system (C-130 325W / C-250 500W), plus whatever additional equipment (such as a chiller) you plan on adding. The power supply outlet must be grounded and connected to a circuit protected by a RCD/RCCB (residual current device or residual current circuit breaker) also known as a GFI/GFCI (ground fault circuit interrupter).

Floor

The floor directly below the legs must be level and rated for a static loading of at least 30kg/cm² (425 lbs/square inch).

Room temperature

Site selection is important for correct temperature maintenance. We recommend that you keep the ambient room temperature a comfortable and stable 22°C / 72°F. Avoid placing the tank in front of an air conditioner, heating vents or direct sunlight. A well ventilated room with moderate light is the best place to position the aquarium.

Accessibility

- **Back:** Ensure that there is at least 10cm (4") of clearance behind the MAX® to allow for sufficient air circulation for a chiller and general ease of operation.
- **Sides (Rear):** Ensure that there is sufficient room (approximately 60cm/24") between both sides of the aquarium and any adjacent walls or furniture for access to the rear of the tank. This is required for the regular maintenance of the surface skimmer, protein skimmer, flow pumps and filter media as well as installing/removing cables to power center.
- **Sides (Front):** Ensure that there is approximately the length of the tank free on at least one of the sides. This is to enable the installation/replacement of the color trim on the tank.

General considerations

Ensure that the area surrounding the aquarium is waterproof and consider moving away anything that water might damage or which may be corroded by salt.

3 Unpacking the MAX® C System

Please read this section carefully before proceeding.

1. Remove the protective packaging from around the hood.
2. Remove the hinge pins from either side of the central opening in the hood and set aside for later assembly.
3. Placing one hand under the hood from the center opening at the rear, carefully lift the hood out of the box and place on a flat surface.
4. Remove the light tubes, components and any packaging materials that are packed inside the aquarium.
5. Open the accessory box and remove all of the parts for later assembly.

Removing the aquarium

CAUTION: The aquarium has a bare glass bottom. Before removing the aquarium from the box prepare a smooth, soft, clean flat surface that can hold its weight.

With one person positioned at either side of the box, grasp the upper rim of the aquarium and gently lift it out and place on the designated surface.

Remove the Cabinet top board from the bottom of the aquarium.

NOTE: Every precaution has been taken to ensure the safe arrival of the MAX® C aquarium system, however before installing a new glass aquarium it is advisable to inspect it for damage or leaks.

Place the aquarium in a suitable location and fill the tank and rear sump to approximately 2.5cm (1") below the top of the glass. Leave the water standing for 15 minutes and inspect for leaks.

Syphon all of the water out before moving.

Approximate weights of Aquarium (empty)

Model	Metric (kg)	Imperial (lb)
C-130	25	55
C-250	40	90

4 Components

MAX®C system main components	C-130	C-250
MAX®C type glass aquarium with integral rear sump	130L	250L
MAX®C Cabinet	Self-assembly	Self-assembly
Power Center	Cabinet Unit	Cabinet Unit
MAX®C T5 closed top lighting hood with timer	2 x 55W	6 x 39W
Color trim pack for aquarium	Type-C	Type-C
MSK Protein Skimmer	MSK600	MSK900
Circulation pumps	1 x 1550lph	2 x 2150lph
Heater	150W	150W
Media Rack	4 shelf	4 shelf
Filter sponges	1	2
Carbon media	1 bag	2 bags
Water Cooling Fan	Dual Fan	Dual Fan
Accessory/Chiller Kit.	Type-C	Type-C

5 Assembly

Perform the assembly and installation of all of the components in the order described below before adding the water to the system.

NOTE: Left and Right designations in this manual are when looking from the front of the Aquarium.

5.1 Cabinet assembly

WARNING: If you are not experienced in the construction of self assembly furniture, seek suitably qualified assistance.

Detailed instructions for the assembly of the MAX®C cabinet can be found in the accompanying graphic manual.

The assembly of the cabinet requires the use of a regular crosshead screwdriver. **Do not use an electric screwdriver.**

Hardware for the assembly of the cabinet may be found in the Accessory Parts box packed inside the aquarium.

Adjustment of the Push-To-Open (PTO) door opening unit.

Pressing the end of the PTO unit by 1.5mm (1/16") will spring the shaft forward by 5cm (2") to the open position.

Pushing the PTO shaft back inside the cabinet will lock it in the closed position.

After assembling the cabinet door, make sure that the PTO is in the closed position and allow the soft close hinges to fully close the door.

With the door in the closed position press the door in the region of the

PTO. The door should spring open. If the door does not spring open adjust the position of the PTO by rotating the front end of the shaft anticlockwise half a turn. Repeat this adjustment until pressing the door causes the PTO to operate.

After assembly, place the cabinet in the desired location.

5.2 Cabinet mounted Power Center

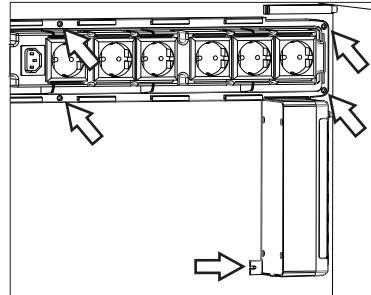
Remove the Splash Cover from the Power Center by sliding it towards the front.

Align the mounting holes on the base of the Power Center with the threaded plastic inserts on the internal wall of the cabinet.

Use the 4 long M4 screws and 1 short M4 screw as indicated to attach the Power Center to the wall. Do not over-tighten the screws.

Pass the main cable through the hole in the rear of the cabinet and check that it is able to reach the electric wall outlet. Do not plug the power center into the wall outlet until instructed at the appropriate time in the assembly process. Check that all of the switches are in the "off" position.

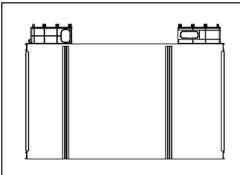
Stick the socket identification label (showing the connection between sockets and switches) inside the cabinet, above the power center



Cabinet mounted Power Center

5.3 Cable Channels

Attach the 2 cable channels to the rear wall of the aquarium.



Cable Channels

5.4 Placing Aquarium

Lifting the glass aquarium onto the cabinet will require at least 2 people. The top of the cabinet is approximately 85cm (33") from the floor. Ensure that anyone lifting the aquarium is physically suitable for such an operation and has been instructed in the correct methods of lifting heavy objects.

Aquarium must be lifted from the bottom.

Take care not to damage the plastic rim on the front and sides at the top and bottom of the glass. Slight damage to the rim will not affect the assembling of the external color trim.

Before lifting aquarium, place the assembled cabinet in the final operating position (see location above) and set the glass aquarium in position on top.

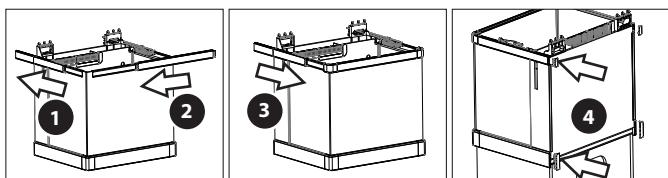
The back of the glass should be flush with the rear edge of the cabinet top board. The front and sides of the glass should protrude slightly beyond the edges of the cabinet board such that the protrusion is approximately even on both sides. Incorrect positioning of the aquarium on the cabinet will interfere with the assembly of the color trim.

Once the aquarium is correctly aligned with the cabinet, check that the cabinet has not moved. If necessary readjust the position of the cabinet.

5.5 Color Trim

The color trim pack contains a set of plastic parts for the upper and lower rim of the aquarium that are painted to the designated color.

The color trim for the upper and lower trim are fitted by sliding them on to their corresponding black rim that is located along top and bottom edges of the aquarium.



First assemble the top and bottom sides by sliding in from the front and initially push them until they protrude about 75mm (3") out the back side of the aquarium. Note that the corner connector on the side sections should be facing the front.

Slide the top and bottom front sections and assemble the corners on the corner connectors. Adjust the trim so that the small gap between the trim and the corner is even on both sides.

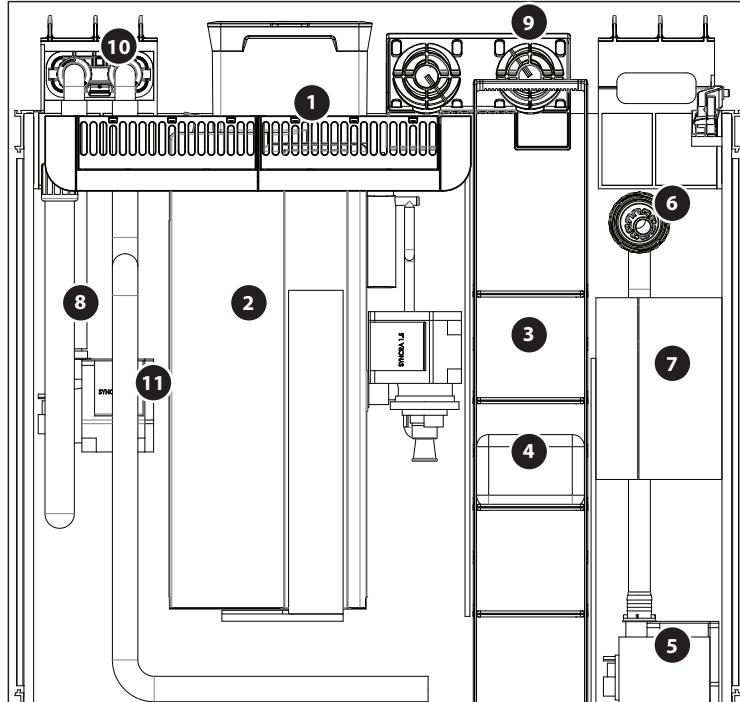
Slide the side sections forward into the correct position.

Insert the rear trim covers into the back of the side sections.

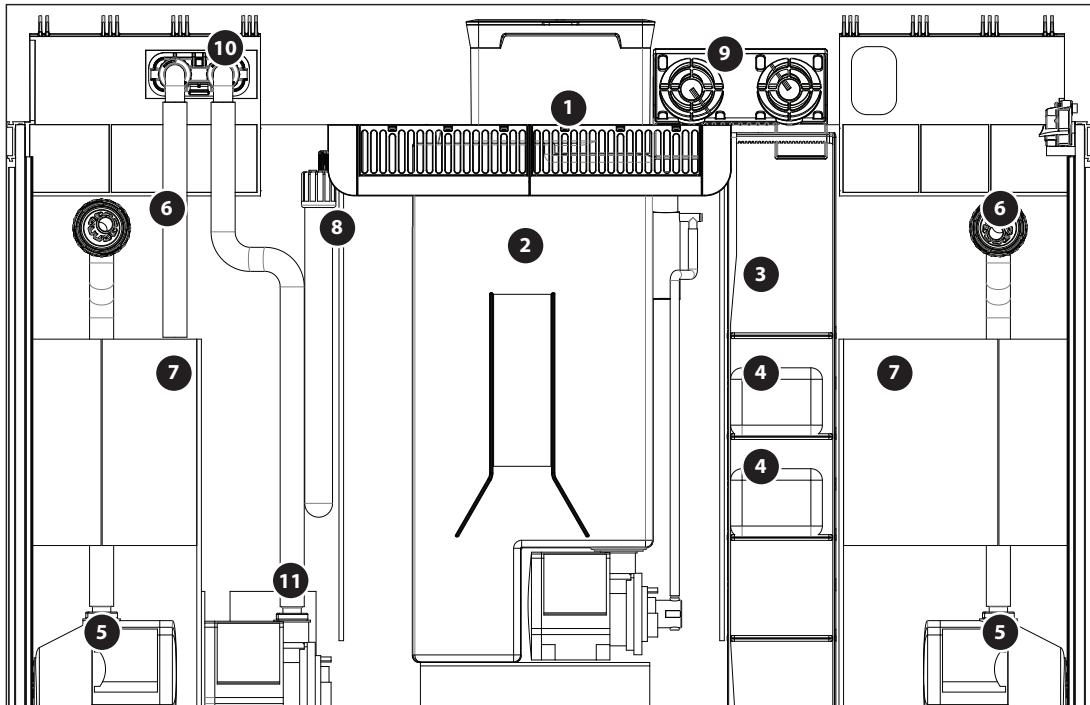
6 Installation of Sump Components

The MAX® C-Series aquariums are divided into 2 parts, Aquarium and the Rear Sump that houses all of the filtration and circulation systems.

1. Detachable Surface Skimmer
2. Protein Skimmer
3. Media Rack
4. Carbon
5. Circulation Pump
6. Pump Outlet Nozzle
7. Filter Sponge
8. Heater
9. Water Cooling Fan
10. Accessory Pipe Unit
11. Chiller Pump (not supplied)



C-130 sump component assembly diagram
shows position of optional chiller pump and piping



C-250 sump component assembly diagram
shows position of optional chiller pump and piping

Overview of the MAX® C rear sump filtration and circulation system

The water flows from the aquarium to the rear sump via a detachable surface skimmer located across the top of the dividing glass wall that directs the organics laden water from the upper surface of the tank into the sump. The circulation pumps located at the bottom of the sump return the filtered water back to the tank through multidirectional outlet nozzles.

The MAX® C-Series sumps contain multistage filtration consisting of a reef-spec protein skimmer, activated carbon and mechanical filtration materials. The sump has dedicated space available for additional chemical filter media as well as the addition of an optional chiller pump.

Water circulation is set at 10 to 15 times the entire water volume per hour with forced flow through the mechanical and chemical filter media while the protein skimmer treats the water at the SPS spec of at least 3 times per hour.

The performance of the filtration system is directly related to the water level inside the aquarium and the rear sump however the MAX® C-Series sump and skimmer design allows for the fluctuations in water height due to the daily evaporation of water from the system.

When all pumps are running, the water in the aquarium will be maintained just below the bracing bars but above the external trim so the water line in the aquarium will never be visible from the outside.

The water level in the rear should be maintained at least 40mm (1½") below the water level in the aquarium to ensure a positive surface skimming action at all times.

Water loss due to evaporation will cause a drop in the water level of the rear sump which can be monitored through the viewing slot at the top of the side panels on both sides. In order to achieve the optimal filtration performances, the water level inside the filtration chamber should be kept at the optimum levels.

NOTE: Before connecting any components to the Power Center ensure that all of the power switches are in the "off" position

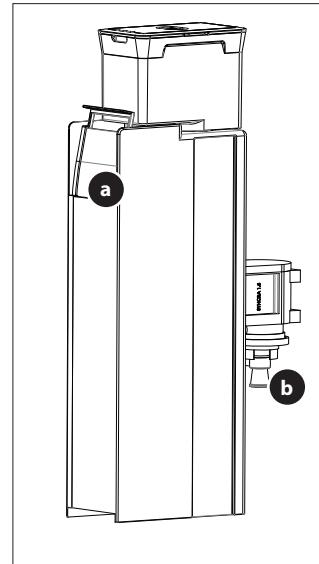
6.1 Protein Skimmer:

The MSK protein skimmers consist of three parts: skimmer body, collection cup and skimmer pump.

Familiarize yourself with the skimmer pump by disassembling and reassembling all of the component parts. Ensure that the impeller chamber cover is correctly positioned and properly secured by the bayonet ring. Before use check that the pump and power cable are not damaged.

Diagram key:

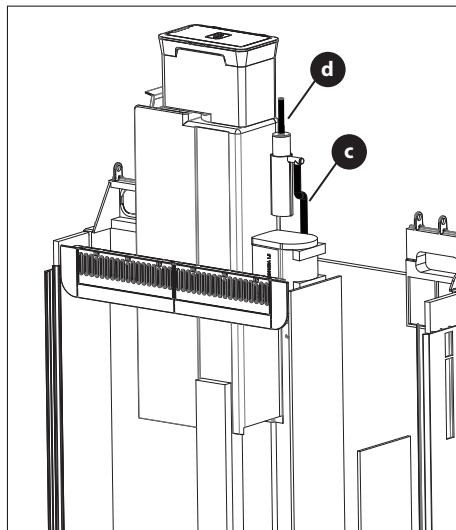
- a. skim adjuster
- b. venturi inlet
- c. air pipe
- d. small air pipe



MSK 600 skimmer

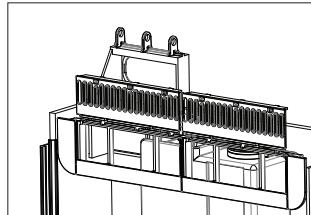
Assemble the skimmer as shown in the diagram.

1. Set the skim adjuster to its lowest position.
2. Connect the air pipe from the venturi inlet of the skimmer pump to the outlet of the silencer.
3. Connect the small air pipe on the inlet of the silencer.
4. An optional air valve is provided for use with the skimmer. Initially do not attach the air valve; it is only to be used if required as described in the operation instructions (chapter 11; page 17).
5. Slide the skimmer into the skimmer compartment. Note the position of the skimmer guides located on the inner wall of the rear sump.
6. Feed the power cable out of the opening in the right hinge bracket above the rear wall, thread the cable through the cable channel and plug the power cable into the designated socket on the power center.
7. Remove the collection cup from the skimmer body until after assembling the hood on the aquarium.



6.2 Surface Skimmer:

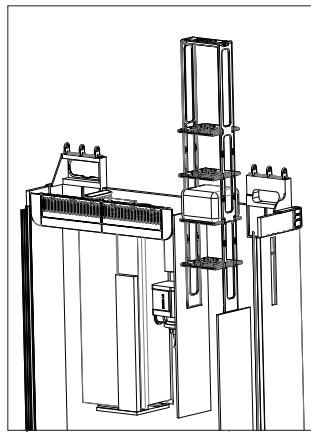
The comb sections of the surface skimmer are easily removed for regular cleaning. Put your hand over the surface skimmer. Hold the comb (not the frame) between thumb and fingers and pull upwards.



Surface Skimmer / comb

6.3 Media Rack:

The media rack is supplied pre-assembled and placed in its normal operating position within the media compartment of the rear sump. Familiarize yourself with the media rack by removing and reinserting it to the media compartment.



Media Rack

6.4 Carbon:

Wash the carbon filter material under running water several times to remove residual dust. It is recommended to soak it in water for 24-72 hr. before usage otherwise during the first 3 days after set-up the carbon may float and release micro air bubbles from inside its pores.

Place the washed carbon onto the designated shelves on the media rack. Ensure that the bag does not protrude outside the frame of the rack.

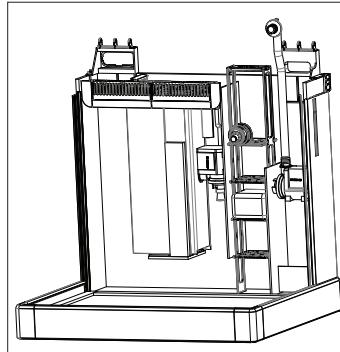
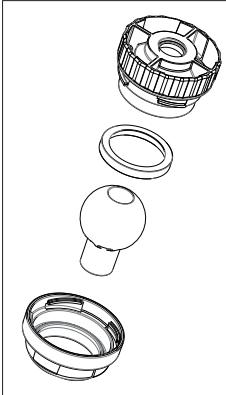
6.5 Circulation Pumps:

Familiarize yourself with the multidirectional outlet by disassembling and reassembling it a few times.

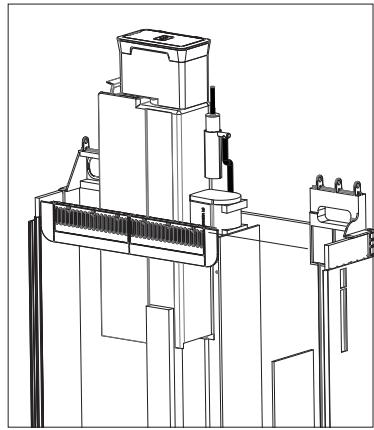
When dry the nozzle does not rotate freely in the socket. Once assembled in the aquarium it will move as required and will remain in the desired position.

Familiarize yourself with the circulation pump by disassembling and reassembling all of the component parts. Ensure that the impeller chamber cover is correctly positioned and properly secured by the bayonet ring. Screw the hose barb provided into the outlet of the pump.

1. Before use, check that the pump and power cable are not damaged.
2. Assemble the flexible pipe to the pump so that the threaded connector for the outlet nozzle is perpendicular to the pump as shown in the drawing.
3. Ensure that the rubber washer is in place on the connector, lower the complete assembly into the pump chamber so that the threaded connector goes through the hole provided in the glass wall.



4. Screw the outlet onto the threaded connector and tighten against the glass. Initially adjust the nozzle to the downward position.
5. Feed the power cable out of the opening in the hinge bracket above the rear wall, thread the cable through the cable channel and plug the power cable into the designated socket on the power center.
6. With the circulation pump secured in position, push the black filter sponge into the pump chamber so that the slit in the sponge is in line with the flexible pipe, as shown in the complete sump assembly diagram.



6.6 Heater:

Inspect the heater for damage or cracks.

Set the thermostat to 26°C (78.8°F), insert the heater into the rear sump in the position shown in the diagrams above and attach securely to the wall using the suction cup provided.

Place the heater cord over the back wall of the sump, thread through the cable channel and plug the power cable into the designated socket on the power center.

6.7 Water Cooling Fan Unit:

The water cooling fan will be most effective to maintain the correct temperature for a reef aquarium by evaporative cooling if the ambient temperature around the aquarium is between 23-25°C / 73-77°F.

Place the water cooling fan unit on the rear wall of the sump close to the right hinge bracket and tighten the screw so that the fan unit is secured in position, do not over tighten. The 12Vdc power cable (part of the MAX®C lighting hood) should be connected to the socket on the back side of the fan unit. Once connected the water cooling can be turned on and off as required by a switch located in the timer compartment of the hood.

NOTE: Evaporative water cooling by the use of fans such as the unit provided with the MAX®C will increase the rate of evaporation. When using the water cooling fan monitor the water temperature and the water level in the rear sump.

7 Installation of optional Chiller (not provided):

For the long-term safety and vitality of reef inhabitants Red Sea recommends the use of chillers with all reef aquariums. Both the aquarium and cabinet of the MAX®C systems are provided "Chiller Ready".

The MAX®C cabinet has air ventilation openings both at the front and rear to providing the free convection cooling necessary for the efficient operation of aquarium chillers.

Use the Accessory/chiller kit to connect a pump and return pipes to a chiller.

1. Attach approximately 30cm (4") of 17mm (3/4") flexible pipe to the outlet of a submersible pump (the MAX®C circulation pumps are suitable for this application) and attach one of the hose barbs to the free end of the pipe such that the hose barb is perpendicular to the pump.
2. Lower the pump and tube assembly into the sump so that the hose barb is facing the rear of the sump. Feed the power cable out of the opening in the hinge bracket above the rear wall, thread the cable through the cable channel and plug the power cable into the designated socket on the power center.
3. Connect the required length of 17mm (3/4") flexible tubing to connect the inlet and outlet ports of the chiller to the hose barbs on the back of the accessory pipe unit. Lock the tubes to the hose barbs with the lock nuts.

4. Insert the accessory pipe unit into the window in the hinge bracket and clicking into position. Make sure that pump cables are positioned in the recess provided on the sides of the pipe unit.
5. Push the hose barb of the pump into one of the connectors and screw the lock nut to hold it in position.
6. Connect the required length of 17mm (3/4") flexible pipe to the other hose barb. Insert the free end of this pipe into the sump as shown and connect the bayonet to the other connector on the pipe unit.
7. When first operating the chiller pump, check that the water is circulating through the chiller without leaks at any of the connections in the piping.
8. If connecting the chiller to an operating system pay attention to the drop in water level and refill the tank with freshly mixed salt water at the same salinity, pH and temp.

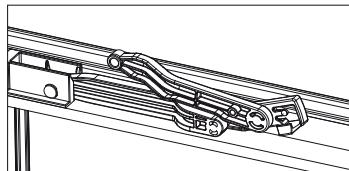
8 Installation of Lighting Hood

Using the protective packaging from the top of the box as a cushion, place the hood upside down on a level surface.

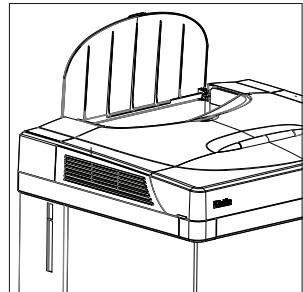
1. Remove the plastic screws from the transparent lens and open the light tube compartment.
2. Insert all of the light tubes, rotating them through 90 degrees until they are seated correctly in the lamp holders.
3. Replace the lens, ensuring that the gasket around its inner edge is properly positioned and secure in place with the plastic lens screws. Remove the protective film from the lens.
4. The hood is now ready to be placed on the aquarium.

NOTE: After initial assembly, replacing the light tubes can be performed with the hood attached to the aquarium

5. Check that the hood support is set in position as shown in the diagram.
6. Feed both the hood power cable and the fan cable out of the opening in the right hinge bracket and place the hood on top of the aquarium.



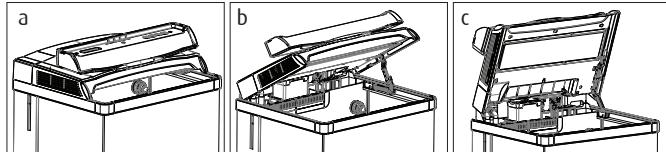
Hood supports



Skimmer - flap open

7. Make sure that the hood fits securely around the rim of the tank; it may be necessary to adjust the position of the hood support to do this.
8. Place the timer cover onto the hood.
9. Hold the skimmer cover in the "open" position over the skimmer chamber, lining up its hinge holes with those of the hood.
10. Insert the hood pins (that were removed for unpacking), attaching both the skimmer panel, timer panel and hood to the hinge brackets. Both panels should open and close easily with the pins securing the hinge.
11. Thread the hood power cable through the cable channel and plug the power cable into the designated socket on the power center.
12. Plug the fan cable into the receptacle on the water cooling fan.
13. Raise the skimmer panel to the upright position and reassemble the skimmer collection cup on the skimmer body.

Securing the hood and switching between the 3 opening positions



1. Make sure you have the upper hood support pin at the ready and fold back the front section of the hood so that it lays on the main body (figure a).
2. With one hand, raise the hood approximately to a 30° angle and hold it open in this position (figure b).
3. With your free hand, snap the upper and middle arms of the hood

supports together and position the hole at the top of the upper arm in the recess provided in the hood. Insert the upper support pin to connect the support to the hood. If you experience difficulty, check the alignment of the pins with the hole and try again.

4. Lower the hood until the lower support arm is resting on the glass. This intermediate position provides good access to most of the aquarium with the light mainly directed across the water surface.
5. To obtain full access to the aquarium raise the hood to the full extent of the hood support arms. Push the lower join of the arms towards the hood and gently lower the hood until it is supported in an almost upright position (figure c). It is advisable to make sure that the lights are switched off before raising the hood to the full open position.
6. To close the hood first lower the hood to the intermediate position, then unlock the middle and upper support arms and gently lower the hood to rest on the color trim.

NOTE: To disassemble the hood from the aquarium, raise the hood to the intermediate position remove the upper hood support pin by inserting the end of a small flathead screwdriver into the small recess in the head of the pin. Thereafter, remove the hood pins from the hood hinges at the back.

DO NOT attempt to remove the hood support by prizing open the support joint.

When removing the hood from the aquarium make sure that the power cable or fan cable do not fall in the water.

Lighting and Fan control

The timer has a 3-position switch:

“1” (ON position) – daylights on, moonlights off

“0” (OFF position – daylights off, moonlights on

Clock symbol – automatically changes between the “1” and “0” settings according to the timer setting.

Each black segment switch around the face of the timer represents $\frac{1}{4}$ of an hour (15 minutes). Move the segment switches to the outer position for the time period you want the daylights to be on. Move the segment switches to the outer position for the time period you want the daylights to be off.

Rear switch (next to the timer) turns off the moonlights in the event that you do not want them on automatically when the daylights are off.

Front switch (next to the timer) on/off for the water cooling fan unit.

Set the actual time by rotating the dial until the arrow is pointing to the current time. This should only be done after the hood has been switched on at the Power Center.

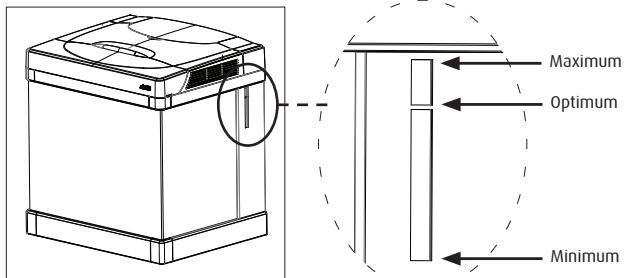
9 Operation of Power Center

With all of the electrical components now installed and plugged into the Power Center, slide the Splash cover along the length of the sockets, allowing the recess in the bottom of the cover to collect the cables and moving them towards the back of the cabinet. With the splash cover in position, ensure that the individual switches are in the off position and plug the Power Center to the wall outlet.

The Power Center is protected by a resettable circuit breaker which will switch off the power to the complete power center in the event of a short circuit in one of the components. In the event that the circuit breaker is activated, locate the faulty item, disconnect it from the power center and depress the circuit breaker reset switch.

10 Initial Fill

Follow the mixing instructions for mixing your artificial sea water. It is advisable to place any substrate or live rocks in the tank before adding the water as this will significantly affect the overall volume of water required.



Add the seawater to the main tank, rear sump and directly into the skimmer (to prevent it floating instead of filling with water) until the water is at the level of the circulation pump outlet nozzles. Turn on the skimmer pump, circulation pump/s and chiller pump if installed and add more water to the system until the water level in the rear sump is at the optimum water level as indicated by the bar across the viewing slot in the side panel.

NOTE: If you have mixed your saltwater for the initial fill inside the aquarium wait until the salt is fully dissolved and that the water has reached the desired salinity and temperature before trying to set the final water level.

11 Operation of the Protein Skimmer

Adjustment of the skimmer will be necessary from time to time due to the constant changes in density and organic material in the water.

The function of the skimmer will not be affected by the normal fluctuation of the water level in the rear sump (due to evaporation) however the water level must be maintained between the maximum and minimum levels shown.

The consistency of the foam produced by the MSK protein skimmers is controlled by raising and lowering the Skim Adjuster.

The foam will be formed in the upper part of the skimmer body and will build and climb up the neck of the collection cup. Set the position of the Skim Adjuster so that the water level in the skimmer body is approximately at the base of the neck.

If the foam is too dry or it starts to accumulate lower in the neck,

gradually raise the Skim Adjuster until the desired foam consistency is achieved. If the foam is too wet, lower the Skim Adjuster.

Over-Skimming

An uncontrollable flow of aerated water into the collection cup.

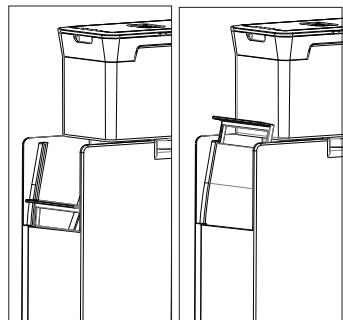
In the event of over-skimming the excess water will flow back into the sump from the overflow slot located at the top of the collection cup.

To control the over-skimming make sure that the Skim Adjuster is set in its lowest position, add the air valve to the top of the air inlet pipe and reduce the air intake until the foam stabilizes. Continue controlling the skimmer by adjusting the air intake. When the skimmer is stable with the air valve fully open, remove the valve and control the skimmer with the Skim Adjuster.

New Skimmers or Set-ups

Skimmers only produce foam if the water contains the proteins that bind to the surface of the air bubbles and give the bubbles the structural rigidity they need to ascend the neck of the skimmer and settle in the collection cup. In a new aquarium set-up the bio-load is low and the amount of proteins is negligible.

New skimmers sometimes need a short break-in period of a few days before they begin to function efficiently. Over-skimming is common while harmless chemical residues that affect the surface tension of the water are neutralized.



Feeding and Supplementing

Skimmers are very susceptible to the effect of surface active compounds such as foods and supplements that are added regularly to the aquarium. Such materials can significantly affect the foam production and in some cases cause over-skimming. Before adding such materials switch the skimmer off for 30 minutes or however long it takes until the skimmer will return to its normal foaming action without repositioning the Skim Adjuster.

Collection Cup

Monitor the amount of skimmate that accumulates in the collection cup and empty the cup on a regular basis. When emptying the cup, clean the inside of the neck by rinsing it with water, as the build-up of skimmate in the neck will adversely affect the skimmer performance. If you wash the cup with detergent make sure to rinse it thoroughly before returning it to the skimmer.

12 General Aquarium Maintenance

The long-term success and health of the inhabitants of your MAX® aquarium depends on you. Proper planning makes reef care easier to manage and quicker to perform. This will leave you more time for the real goal: enjoying your aquarium. Care of the tank should follow a regular, logical pattern. Divide the tasks into daily, weekly and monthly procedures, including equipment checks, feeding, water parameter testing and adjustments.

You may find it helpful to make a systematic checklist of care activities and keep a log of the activities performed. Your log does not need to be complicated; you will need to track the following:

- The tank's parameters – pH, salinity, temperature, etc.
- The general appearance of the tank and individual species.
- Equipment changes – when you changed light tubes or replaced heaters, etc.
- Replacement of carbon or other filter media.
- Information specific to each animal – when they were added, moved or removed, their approximate size, any signs of stress or ill health etc.

Water levels

Check the water level in the rear chamber on a daily basis and add fresh water as required to compensate for any evaporation. Do not allow the water level in the sump to remain outside of the min/max water levels. If the water in the aquarium is too high check that the combs of the surface skimmer are not blocked.

Surface Skimmer

Remove and clean the combs of the surface skimmer at least once a week to allow proper water flow and stable water level differentiation between the aquarium and the rear sump. Periodically soak the combs in a weak acidic solution (vinegar, citric acid) until any calcium carbonate deposits have dissolved.

Protein skimmer

Check the foam production in the collection cup and reposition the Skim Adjuster or air flow as required to maintain a stable dry foam. Empty and clean the neck of the collection cup as required.

Pumps

Checking that the circulation pumps are working well and are pointed in the right directions. If you notice any regression in currents, check each pump and the outlet nozzles for any obstructions (snails, crabs, carbon chips, etc.).

To ensure proper function of skimmer and circulation pumps they should be cleaned on a regular basis.

NOTE: Aquariums with higher levels of Calcium and Alkalinity will require more frequent maintenance.

To clean the pumps:

- Unplug the power cord of the pump from the electric supply and remove it from the aquarium.
- Remove the impeller housing and take out the impeller.
- Clean all of the parts, impeller housing, impeller and the impeller chamber of the motor by wiping with a soft cloth or brush. To remove calcium carbonate deposits soak the parts in a weak acidic solution (vinegar, citric acid) until deposits have dissolved.
- Rinse all parts thoroughly, reassemble the pump, ensuring that all pipes are connected securely and return to the aquarium before reconnecting the power cable to the electric supply.

NOTE: If the pump makes mechanical noise after cleaning, replace the impeller. The impeller is a wear item and may need to be replaced periodically.

Water temperature control

For optimum conditions a reef aquarium should be maintained at a stable water temperature in the range of 24-28°C / 76-82°F (the stability of the temperature being more important than the exact value). Slightly higher temperatures can be tolerated for short periods of time as long as the change in temperature is steady and not sudden. Monitor the temperature at least twice a day, looking for dramatic fluctuations.

Avoid temperature differences of more than 2°C / 7°F during the day. During season changes and when heating or cooling the house, monitor the tank temperature more frequently, adjusting the heater/chiller as necessary.

Change the carbon filter

Replace the active carbon filter every two months.

Lighting tube replacement

Over 6-12 months, the intensity of the fluorescent tubes will decrease as much as 50% and the spectrum will narrow towards the red end, which can promote algae bloom.

Refer to the installation instructions (chapter 8; page 14) for inserting replacement tubes. Always switch off the complete lighting controller at the Power Center before doing any maintenance work on the lights.

Lighting Compartment Lens

Wipe the lens regularly with a soft cloth.

Hood Fans

Ensure that the air vents on either side of the hood are clean and free from dust. The cooling fans inside the hood are a wear item and may need replacing from time to time. Mechanical noise from the fans is an indication that they need replacing.

13 Trouble shooting

Q. My set up is new and the skimmer doesn't seem to be skimming.

A. Check that the salinity of the water is within the correct range for reef aquariums. If the setup is new or if you have just cleaned your skimmer, rinse thoroughly with water and return to the sump. The skimmer should start foaming within a few days. Skimmers react to changes in water density and other harmless chemical residue from the production process. While this is safe for your aquarium, it will impede the skimmer's efficiency for a couple of days. Remember that your skimmer will work only if the water contains proteins, as these proteins bind to the surface of the air bubbles and give the bubbles the structural rigidity they need to ascend the neck of the skimmer and settle in the collection cup.

Q. My skimmer is new and is producing a lot of weak, watery foam (over-skimming).

A. Production of an excessive amount of weak, watery foam – also referred to as over-skimming indicates the presence of chemical substances that need to be removed by the skimmer. Lower the position of the Skim Adjuster as necessary to reduce the water level in the skimmer neck and if necessary reduce the air flow by adding the air valve to the air inlet and restrict the air flow until you get a stable foam production. It may take a few days for the skimmer to remove all of the chemicals.

Q. My set up is not new and skimmer isn't producing foam or it is too dry and builds on the neck.

A. During a new set-up the bio-load is low and the amount of organics is negligible. If your MAX® is fully stocked, increase the height of the skimmer shutter as necessary and open the air valve. Check the water level in the rear filtration chamber and raise it to the optimal line. If you still get light foam production inspect for blockage in the airline or skimmer inlet.

Q. My skimmer is not new and is over-skimming after feeding and/or supplementing.

A. See Feeding and Supplementing in chapter 12 (page 18).

Q. The water level in the aquarium is too high.

A. Check the surface skimmer comb for restrictions such as algae or snails and clean the comb as instructed above.

Q. A pump has stopped working or is making mechanical noise.

A. Disassemble and clean the pump as instructed above.

Q. The circulation pumps are injecting micro-bubbles into the aquarium.

A. Make sure that you have added freshwater to compensate for evaporation and that the water level in all compartments of the rear sump is correct and that there are no blockages in the surface skimmer or in filter media preventing the pumps from being fully submerged. A low level of micro-bubbles in marine aquariums is normal and should be expected. Intense skimming is the secret of great water quality, as it both removes organic waste before it can break down AND maintains a high redox level. This is achieved by

super-saturating the water with air, i.e. dissolving more gas into the water than is normal for the given temperature and pressure. Once the super-saturated water leaves the skimmer, it "relaxes" and releases the extra gas in the form of micro-bubbles. In the MAX® C-Series the pumps are located near the bottom of the sump and are pre-filtered by a sponge that should prevent any air bubbles from reaching the pump inlet. There may be a buildup of air trapped inside the sponge. Remove the sponge, rinse and return it to the sump. You might be getting micro-bubbles if you are using tap water with water conditioners or natural seawater. Many conditioners, some synthetic salt formulae and impurities found in natural seawater increase the surface tension of the water and cause a small proportion of the bubbles to escape out of the skimmer chamber and flow out through the pumps. We strongly recommend NOT using tap water. If you are using tap water DO NOT add conditioners or de-chlorinators. Allow the water to settle for 24 hours to let the chlorine evaporate naturally before introducing to the aquarium.

15 Warranty

Red Sea Aquarium Products Limited Warranty.

The limited warranty sets forth all Red Sea Aquatics (HK) Ltd (Red Sea) responsibilities regarding this product. There are no other express or implied warranties from Red Sea.

Red Sea warrants your product against defects in materials and workmanship for a period of 12 months, valid from the date of original purchase and will repair this product free of charge (not including shipping costs) with new/rebuilt parts. Damage to the aquarium glass or to the florescent tubes is not included. The precondition for the warranty is that the stipulated set-up routine is observed. In the event that a problem develops with this product during or after the warranty period, contact your local dealer or Red Sea (at the company address indicated) for details of your nearest authorized service center.

The warranty is extended only to the original purchaser. Proof of date of purchase will be required before warranty performance is rendered. This warranty only covers failures due to defects in materials or workmanship which occur during normal use. It does not cover damage which occurs in shipment or failures which result from misuse, abuse, neglect, improper installation, operation, mishandling, misapplication, alteration, modification or service by anyone other than an authorized Red Sea service center. Red Sea shall not be liable for incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty. All express and implied warranties, including the warranties of saleability and fitness for particular purpose, are limited to the applicable warranty period set forth above.

These statements do not affect the statutory rights of the consumer.

USA

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusion or limitations may not apply.

To benefit from product update information and exclusive special offers to registered MAX® owners, please register your MAX® on-line at redseafish.com

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